



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

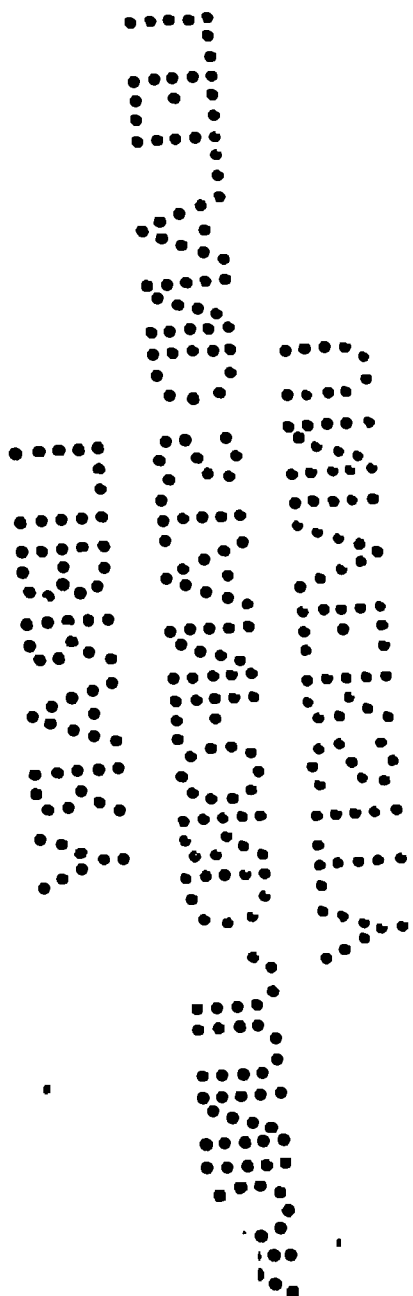
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

12.
12-1

COPYRIGHT, 1903, BY G. STANLEY HALL.



**PRESS OF OLIVER B. WOOD,
WORCESTER, MASS.**

fully instructive. It shows all the difference between the organism and the machine, the latter has to do with the development of power, the former with a change of structure. It also shows us that we are at the beginning of a new period of knowledge in which we shall be obliged to follow the state of the organism in connection with the conditions under which it sustains its life even to the cells. This period introduces new problems, it also promises us new fruits among which—if I overlook the effect upon medical science—I count, as not the least, a new conception of evolution.

EXPLANATION OF PLATE.

Fig. 1. Photograph of cross section of a skin muscle with trophic change. The unchanged fibers a a are stained red, those with trophic changes are stained from blue to dark blue and black. Section in Canada balsam.

Fig. 2. Photograph of a trophic change in the skin muscle. The muscle is spread out and treated with Os O₄ and laid in glycerine. a a The torn and changed fibers form a ridge or wall. b The nerve stained with Os O₄, b' point where the medullated sheath is no longer blackened. c The vein, c' the enlarged vein with the valve.

Fig. 3. Photograph of a section of the liver from a *R. esculenta* female after the disappearance of the ovaries. a-a Liver cells. b-b Large groups of cells between the liver cells.

Fig. 4. Photograph of a section of the liver from a *R. esculenta* male after the disappearance of the testes. a-a Liver cells. b-b Small groups of pigment cells.

Fig. 5. Photograph of blood at an altitude of 4,200 meters. Blood fixed in the balloon three hours after ascent. The nuclei are dark blue sharply defined spots. In some instances it is a mere point, at others it is larger. Highly magnified.

Fig. 6. Photograph of blood after the return from the balloon ascent. The blood corpuscles are rich in hæmoglobin, are evenly stained and no differentiation is discernible.

As the corpuscles are stained with eosin, which makes little impression on a photographic plate, they appear like shadows.

ing and publishing psychologists are interested, Professor Titchener has invited me to add a note to his paper expressing my views on the subject also. I am happy to do so, for though the matter is a mechanical one and seemingly quite insignificant in comparison with the quality of thinking embodied in the paper, it is just these mechanical aids to work that make more and better work possible. It is a case of the telephone and typewriter over again. I may say then in one word that I heartily concur in all that Professor Titchener urges with reference to the importance of table of contents, summaries and indexes. I do not concur, however, for a moment in his even temporary omission to "stress" the fact that psychological papers are for the most part unconscionably long. A hundred pages are often taken for saying what ought to be said in twenty-five, and could be said if they were confined to a statement of points really demonstrated and essential conditions.

E. C. SANFORD.

- BOOTH, FRANK W. Statistics of speech teaching in schools for the deaf in the United States. *Proc. N. E. A.*, 1900, pp. 668-670.
- COLLINS, JOSEPH. The genesis and dissolution of the faculty of speech: a clinical and psychological study of aphasia. Macmillan Co., New York, 1898. pp. 432.
- DUPRAT, G. L. Les troubles de la parole chez l'enfant. *Manuel Gén. de l'Instruction Primaire*, May 5, 1900, No. 18, pp. 277-279.
- GUTZMAN, H. Des Kindes Sprache und Sprachfehler. *Gesundheitslehre der Sprache für Eltern, Erzieher und Aerzte*. J. J. Webber, Leipzig, 1894, pp. 264.
- GUTZMANN, H. Das Stottern. Rosenheim, Frankfurt a. M., 1898. pp. 467.
- LIEBMANN, A. Die Sprachstörungen geistig zurückgebliebener Kinder. *Sammlung v. Abh. a. d. Geb. d. Päd. Psy. u. Physiol.*, 1901, Vol. 4, Pt. 3, pp. 78.
- LIEPMANN, H. Sprachstörung und Sprachentwicklung. *Neurol. Centralblatt*, 1900, Vol. 19, pp. 695-703.
- MUTKE, ROBERT. Die Behandlung stammelnder und stotternder Schüler. Breslau, 1898. pp. 30.
- SCHWENDT, A. Examen clinique et acoustique de 60 sourds-muets. *La Parole*, 1899, Vol. 9, pp. 641-672.
- SCHWENDT, A. Les restes auditifs des sourds-muets peuvent-ils être utilisés pour leur apprendre à mieux parler? *La Parole*, 1899, Vol. 9, pp. 845-869.

Other select bibliographies will be printed later.

We give below, in separate Tables, the average limens of movement, and of direction.

TABLE IV.
Monocular Gradual Movement. Showing the points at which movement was first noticed in Approach and in Recession.

	286 mm.		333 mm.		400 mm.		500 mm.		667 mm.	
	Approach. Recession.		Approach. Recession.		Approach. Recession.		Approach. Recession.		Approach. Recession.	
G.	241	375	287	425	344	493	417	601	578	778
M.	220	365	271	420	320	515	410	622	550	807
S.	232	388	280	479	325	570	396	664	550	850
D.	225	380	289	443	328	533	415	620	552	805
B.	240	421	278	507	325	610	405	706	555	927
G.	15.8%	31.2%	13.8%	27.6%	14%	23%	16.6%	20%	13.4%	16.7%
M.	23	27.7	18.6	26	20	29	18	24	17.6	21
S.	18.9	35.7	16	44	19	43	21	33	17.6	27.5
D.	21	33	13	31	18	33	17	24	17.3	21
B.	16	47	16.5	52	19	52	19	41	16.8	39

TABLE V.
Results of Monocular Gradual Series. Direction discerned. Confidence 1. Showing points at which direction of gradual movement was first observed in Approach and in Recession.

286 mm.		333 mm.		400 mm.		500 mm.		667 mm.	
	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.	Approach. Recession.
G.	229 415	272 462	323 515	388 620	520 827				
M.	212 398	247 469	285 543	366 656	496 848				
S.	219 407	251 516	313 596	374 679	511 873				
D.	201 513	243 539	284 684	343 770	500 892				
B.	183 875	196 683	197 750	234 883	242 —				

G.	20%	45%	18%	39%	19%	29%	22%	24%	
M.	26	39	26	41	29	36	27	31	27
S.	23	42	25	55	22	49	25	36	31
D.	30	79	27	61	29	71	31	54	34
B.	36	206	41	105	51	88	53	77	—

Grandin Star.

President of the First American
mental Psychology Association
Journal for the Psychological
of Psychology, 1900-1901.

of course in the Systematic Study of Mental De-
ment of Children and the Application of
its Results to Educational Methods.

of the Science of Others and the Science of
Knowledge.

19

and the Science of the Science of the Science of
the Science of the Science of the Science of
the Science of the Science of the Science of

This Collection of Papers is a collection of
a Collection of Papers and Papers.

	PAGE
A Study on the Conductivity of the Nervous System, by Professor YUJIRO MOTORA,	329
The Relation of Motor Power to Intelligence, by Professor T. L. BOLTON,	351
Are Chromæsthesias Variable? A study of an Individual Case, by Professor F. B. DRESSLAR,	368
On the Guessing of Numbers, by Professor E. C. SANFORD,	383
A Quarter Century of Psychology in America: 1878-1903, by Professor EDWARD FRANKLIN BUCHNER,	402
A Bibliography of the Published Writings of President G. Stanley Hall, by LOUIS N. WILSON,	417

If estimation of Duration showed agreement with Weber's Law, then a measurement system according to the well-known formula, $E = k \log. R.$ would be possible.

Since estimation of Duration does not follow Weber's Law, it seems to the writer that Ebbinghaus's system of measurement fails to have validity for any aspect of sensation.



6 b.

FIGURE 6.

6 a.

In the reproduction of the original drawing of this instrument the letters Gs have become nearly indistinguishable. They lie about the middle of a straight line drawn from the letter D to the tip of the middle finger.

L. S.

X.

2200

2500

3000

3500

4000

4500

5000

5500

FIGURE 7. *Flexor profundus, first finger of right hand.*

with distraction, the pitch of a chord is more difficult to remember and to discriminate, than the pitch of a single clang.

As tested under the same conditions, the pitch of a simple melody is as easily remembered and discriminated as the pitch of a single clang, possibly more easily. In the latter case it is not clear whether the increased facility is due to the melodic form itself or merely to the greater number of stimuli employed.

Trials.		1st.	2nd	3rd.	4th.	5th.
Good.	8 yrs. R. H.	27.60	28.80	28.50	28.80	29.00
"	" L. H.	24.00	24.20	24.90	24.00	24.80
Difference		3.60	4.60	3.50	4.80	4.20=20.80
Poor.	9 yrs. R. H.	26.42	28.50	28.08	27.75	27.00
"	" L. H.	24.95	23.67	23.73	23.36	23.12
Difference		1.47	4.83	4.35	4.39	3.88=18.92
Poor.	8 yrs. R. H.	26.25	27.75	26.83	27.91	27.40
"	" L. H.	23.33	23.17	24.16	23.10	23.44
Difference		2.92	4.58	2.67	4.81	3.96=18.94

Second Part.

Good.	9 yrs. R. H.	29.76	30.21	30.31	30.93	31.39
Poor.	" "	26.42	28.50	28.08	27.75	27.00
Difference		3 34	1.71	2.24	3.18	4.39=14.85
Good.	9 yrs. L. H.	26.48	26.90	26.93	26.68	26.80
Poor.	" "	24.95	23.67	23.73	23.36	23.12
Difference		1.53	3.23	3.20	3.32	3.68=14.96
Good.	8 yrs. R. H.	27.60	28.80	28.50	28.80	29.00
Poor.	" "	26.25	27.75	26.83	27.91	27.40
Difference		1.35	1.05	1.67	.89	1.60= 6.46
Good.	8 yrs. L. H.	24.00	24.20	24.90	24.00	24.80
Poor.	" "	23.33	23.17	24.16	23.10	23.44
Difference		.67	1.03	.74	.90	1.36= 4.90

Third Part.

Good.	9 yrs. R. H.	29.76	30.21	30.31	30.93	31.39
"	8 " "	27.60	28.80	28.50	28.80	29.00
Difference		2.16	1.41	1.81	2.13	2.39= 9.90
Good.	9 yrs. L. H.	26.48	26.90	26.93	26.68	26.80
"	8 " "	24.00	24.20	24.90	24.00	24.80
Difference		2.48	2.70	2.03	2.68	2.00=11.89
Poor.	9 yrs. R. H.	26.42	28.50	28.08	27.75	27.00
"	8 " "	26.25	27.75	26.83	27.91	27.40
Difference		.17	.75	1.25	-.16	-.40= 1.61

1. The first series of experiments was conducted with the following results:



DOES NOT CALCULATE

